Appln. No. 09/672,116
Amdt. dated March 3, 2005
Amendment under 37 CFR 1.116 Expedited Procedure
Examining Group 3624

<u>PATENT</u>

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently amended) A computer-implemented method of constructing a portfolio having a utility defined by at least a first function U_1 <u>for positive rates of returns</u> and a second function U_2 <u>for negative rates of returns,</u> the computer-implemented method comprising:

selecting a plurality of assets in the portfolio; and

maximizing an expected utility of the portfolio; wherein the at least first function U_1 is a ~~power-utility~~ <u>log-utility</u> function ~~having a first power defining the degree of risk aversion of a holder of the portfolio~~ <u>characterized by the following</u>:

$$U_1 = 1 + \ln(1+r) \quad \text{for } r \geq 0$$

<u>where U_1 represents the portfolio's utility to the portfolio holder, r represents the portfolio's return, and ln is a symbol for natural logarithm,</u> and wherein the at least second function U_2 is a power-utility function ~~having a second power defining the degree of risk aversion of the holder of the portfolio~~ <u>characterized by the following</u>:

$$U_2 = \frac{1}{\gamma}\left[(1+r)^\gamma + \gamma - 1\right] \quad \text{for } r < 0$$

<u>where U_2 represents the portfolio's utility to the portfolio holder, r represents the portfolio's return, and γ represents the risk-aversion of the portfolio holder and has a value of less than or equal to 0.</u>
~~wherein the first power is different from the second power.~~

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    2-4.   Canceled.

    5.   (Currently amended) The method of Claim [[4]] 1 wherein the act of maximizing the expected utility of the portfolio further comprises the act of selecting a weight for each asset in the portfolio.

    6.   (Currently Amended) The method of Claim 5 wherein the act of selecting a weight for each asset in the portfolio further comprises:

    ~~assigning a probability point to the occurrence of each one of a plurality of economic events;~~

    computing the utility of the portfolio for a plurality of economic events ~~each economic event~~ and computing the portfolio's return for each one s of the plurality of economic events in accordance with the following:

$$r_s = \sum_{i=1}^{N} w_i r_{is}$$

where r_s corresponds to the portfolio's return in economic event s, w_i corresponds to a weight of asset i in the portfolio, r_{is} corresponds to a return for asset i in economic event s; i corresponds to an asset number varying from 1 to N, and wherein N corresponds to the number of assets from which the portfolio is selected;

    multiplying the utility of the portfolio computed for each economic event with the probability of the occurrence of that economic event thereby generating a plurality of values $p_s U_s$ wherein U_s corresponds to the portfolio holder's utility in the economic event s; p_s corresponds to a probability of occurrence of the economic event s, and

    summing the values to compute an expected utility as defined below:

$$E(U) = \sum_{s=1}^{S} p_s U_s$$

where S corresponds to the number of possible economic events and s varies from 1 to S.

7. Canceled.

8. (Currently amended) A computer system for constructing a portfolio having a utility defined by at least a first function U_1 for positive rates of returns and a second function U_2 for negative rates of returns, the computer system comprising:

a processor; and

a memory coupled to the processor, said memory storing a plurality of code modules for execution by the processor, the plurality of code modules comprising:

a code module for selecting a plurality of assets in the portfolio; and

a code module for maximizing an expected utility of the portfolio; wherein the at least first function U_1 is a ~~power utility~~ log-utility function ~~having a first power defining the degree of risk aversion of a holder of the portfolio and~~ characterized by the following:

$$U_1 = 1 + \ln(1+r) \text{ for } r \geq 0$$

where U_1 represents the portfolio's utility to the portfolio holder, r represents the portfolio's return, and ln is a symbol for natural logarithm, and wherein the at least second function U_2 is a power-utility function ~~having a second power defining the degree of risk aversion of the holder of the portfolio~~ characterized by the following:

$$U_2 = \frac{1}{\gamma}\left[(1+r)^\gamma + \gamma - 1\right] \text{ for } r < 0$$

where U_2 represents the portfolio's utility to the portfolio holder, r represents the portfolio's

return, and γ represents the risk-aversion of the portfolio holder and has a value of less than or

equal to 0 ~~wherein the first power is different from the second power~~.

       9-11.   Canceled.

       12.   (Currently amended) The computer system of Claim [[11]] 8 wherein the
code module for maximizing the expected utility of the portfolio further comprises a code
module for selecting a weight for each one of the plurality of assets in the portfolio.

       13.   (Currently amended) The computer system of Claim 12, wherein the
code module for selecting a weight for each one of the plurality of assets in the portfolio further
comprises:

       ~~code module for assigning a probability point to the occurrence of each one of a
plurality of economic events;~~

       code module for computing the utility of the portfolio for a plurality of economic
events ~~each one of the plurality of economic events~~ and computing the portfolio's return for each
one s of the plurality of economic events in accordance with the following:

$$r_s = \sum_{i=1}^{N} w_i r_{is}$$

       where r_s corresponds to the portfolio's return in economic event s, w_i

corresponds to a weight of asset i in the portfolio, r_{is} corresponds to a return for asset i in

economic event s; i corresponds to an asset number varying from 1 to N, and wherein N

corresponds to the number of assets from which the portfolio is selected;

       code module for multiplying the utility of the portfolio computed for each one of
the plurality of economic events with the probability of the occurrence of that economic event
thereby generating a plurality of values $p_s U_s$, wherein U_s corresponds to the portfolio holder's

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utility in the economic event s; p_s corresponds to a probability of occurrence of the economic

event s; and

               code module for summing the values to compute an expected utility as defined

below:

$$E(U) = \sum_{s=1}^{S} p_s U_s.$$

where S corresponds to the number of possible economic events and s varies from 1 to S.

            14-31   Canceled.